217/782-2113

CONSTRUCTION PERMIT
PREVENTION OF SIGNIFICANT DETERIORATION APPROVAL

PERMITTEE

Archer Daniels Midland Company
Attn: Mark Carroll, Environmental Compliance Manager—Corn Processing Plant
4666 Faries Parkway
Decatur, Illinois 62526

Application No.: 03020027 I.D. No.: 115015AAE
Applicant's Designation: DRYER #5 Date Received: February 13, 2003
Subject: Wet Corn Mill Feed Dryer #5
Date Issued: November 5, 2003
Location: 4666 Faries Parkway, Decatur

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a regenerative thermal oxidizer (RTO) on the #5 feed dryer system as described in the above referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

In conjunction with this permit, approval is given with respect to the Prevention of Significant Deterioration of Air Quality Regulations (PSD) and to operate the #5 feed dryer system with a control system that includes an RTO to construct the above referenced project, in that the Illinois Environmental Protection Agency (Illinois EPA) finds that the application fulfills all applicable requirements of 40 CFR 52.21. This approval is issued pursuant to the Clean Air Act, as amended, 42 U.S.C. 7401 et. seq., the Federal regulations promulgated thereunder at 40 CFR 52.21 for Prevention of Significant Deterioration of Air Quality (PSD), and a Delegation of Authority agreement between the United States Environmental Protection Agency and the Illinois EPA for the administration of the PSD Program. This approval becomes effective in accordance with the provisions of 40 CFR 124.15 and may be appealed in accordance with the provisions of 40 CFR 124.19. This approval is also based upon and subject to the following findings and the conditions, which follow:

1. Archer Daniels Midland (ADM) has requested a construction permit to install an oxidizer to further control emissions from feed dryer (Dryer #5) in the wet corn mill (mill) at its Decatur manufacturing complex. The dryer produces cattle feed from ADM by-products and the material that remains after the starch, oil and gluten are removed from corn. Emissions from the dryer would be controlled by a multi-stage control system, including cyclones, wet scrubbing, and the proposed regenerative thermal oxidizer (RTO). The new RTO would significantly reduce emissions of VOM and CO from Dryer #5.

2. The source is located in Decatur Township in Macon County. The area is designated attainment for all pollutants.

3. The project is subject to PSD review for particulate matter (PM_{10}), volatile organic material (VOM), and carbon monoxide (CO) because Dryer #5 has emitted significant amounts of PM, VOM, and CO, i.e., more than 15, 40, and 100 tons/year respectively, without the proposed RTO and ADM has not previously obtained a PSD permit for the dryer that addressed significant emissions of these pollutants. The permit would now limit annual PM, VOM, and CO emissions to 13.5, 27.7, and 67.6 tons respectively from Dryer #5. At these levels, the dryer would no longer be a significant source of emissions so that an analysis of air quality impacts is not required.

4. After reviewing the materials submitted by ADM, the Illinois EPA has determined that the project, as proposed, would (i) be in compliance with applicable Board emission standards and (ii) utilize Best Available Control Technology (BACT).

5. The Illinois EPA has determined that the project, as proposed, would comply with all applicable Illinois Air Pollution Board Regulations and the federal Prevention of Significant Deterioration of Air Quality Regulations (PSD), 40 CFR 52.21.

6. A copy of the application and a summary of the Illinois EPA's review of the application and a draft of this permit were placed in a location in the vicinity of the project, and the public was given notice and an opportunity to examine this material and to submit comments and to request a public hearing on this matter.

The Illinois EPA is issuing this approval subject to the following conditions and consistent with the specifications and data included in the application. Any departure from the conditions of this approval or terms expressed in the application would need to receive prior written authorization by Illinois EPA.

Standard Conditions

1. Standard conditions for issuance of construction permits, attached hereto and incorporated herein by reference, shall apply, unless superseded by the following special conditions.

Best Available Control Technology

2a. i. Dryer #5 shall be equipped, operated, and maintained with a multi-stage control system consisting of cyclones, wet scrubbing and regenerative thermal oxidization (RTO). The control system shall be operated and maintained in conformance with good air pollution control practices.

ii. The PM emission control system shall be designed, constructed, and maintained to achieve PM emission rate from Dryer #5 that is no more than 0.010 gr/dscf. For this purpose, PM shall be determined as filterable particulate matter, as measured by USEPA Method 5 (See also Condition 5).

b. The RTO system shall be designed, constructed, and maintained to comply with the following limits:

i. At least 90 percent destruction of CO by mass, (comparing the CO in the inlet and outlet of the system) or a CO emission rate from Dryer #5 that is no more than 100 ppm; and

ii. At least 95 percent destruction of VOM by mass (comparing the VOM in the inlet and outlet of the system) or a VOM emission rate from Dryer #5 that is no more than 10 ppm, as expressed as propane.

Condition 2 addresses Best Available Control Technology, for PM, CO and VOM emissions as required by Section 165 of the Clean Air Act. These requirements and the emission limits in Condition 3 take effect after initial shakedown of the RTO is completed, which period shall end 180 days after initial startup of the dryer with the RTO unless extended by the Illinois EPA.

3. Limitations

a. Dryer #5 shall be equipped, operated, and maintained with low NO_x natural gas or biogas-fired burner. The burners shall be operated and maintained in conformance with good air pollution control practices.

b. Emissions of PM, SO_2, CO, VOM and NO_x from Dryer #5 shall not exceed the following limits:

i. PM – 3.1 lb/hour and 13.5 tons/year.

ii. NO_x, (including the contribution from the RTO burner) – 8.0 lb/hour and 35 tons/year.

iii. SO_2 – 7.1 lb/hour and 30.9 tons/year.

iv. CO – 15.4 lb/hour and 67.6 tons/year.

v. VOM – 6.3 lb/hour and 27.7 tons/year.

c. This permit is issued based on Dryer #5 not being subject to PSD for SO_2 or NO_x because emissions of SO_2 and NO_x are less than the significant emission rate threshold.

d. This permit does not authorize changes to the mill that are unrelated to Dryer #5 that would increase the mill’s capacity.

4. Good Operating Practices

The Permittee shall operate, maintain, and repair Dryer #5 and its control system in a manner that is consistent with the following:

a. Operating Procedures for Control System: Written operating procedures shall be developed and maintained describing normal air pollution control equipment operation, including startup and shutdown. Such procedures shall include maintenance practices and may incorporate the manufacturers recommended operating instructions.

b. Operating Procedures for Burner: Written operating practices shall be developed and maintained, including establishment of target levels for the following operating parameters for the low NO_x burner:

i. Furnace Temperature Operating Range.

ii. Combustion Air Fan Amperage.

iii. Recirculated Air Damper Position and Secondary Air.

c. Inspections: Visual inspections of Dryer #5 and its air pollution control and monitoring equipment shall be conducted on at least a weekly basis.

d. Repairs: Prompt repairs shall be made upon identification of need either as a consequence of formal inspections or other observations in conformance with good air pollution control practice.

e. Records: Records of inspection, maintenance, and repair activities for all equipment shall be kept on site and shall include as a minimum:

i. Date of inspection, maintenance, and repair activities.

ii. Description of maintenance or repair activity if not routine preventative maintenance.

iii. Probable cause for requiring maintenance or repair if not routine or preventative.

These requirements and related monitoring, recordkeeping and reporting requirements in Conditions 6, 7 and 9 may be revised and relaxed by the Illinois EPA in the CAAPP Permit issued to the source.

5. Emission Testing Requirements

a. i. Within 180 days of startup of the Dryer #5 RTO the Permittee shall have PM, NO_x, SO_2, CO and VOM emissions and opacity from Dryer #5 and the destruction efficiency of the RTO system for CO and VOM measured at its expense by an approved testing service, during full load operation of the dryer and conditions which are representative of maximum emissions to verify compliance with the requirements of this permit. In

additions, if the Permittee is relying on destruction efficiency for CO or VOM, as provided in Condition 2(b)(i) or (ii) the Permittee shall also measure CO or VOM, as appropriate, at the inlet to the RTO.

ii. Emission measurements shall also be conducted upon written request from the Illinois EPA.

b. i. The following testing methods and procedures shall be used. Refer to 40 CFR 60, Appendix A for USEPA test methods.

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Flue Gas Weight	USEPA Method 3
Moisture	USEPA Method 4
Particulate Matter (PM)	USEPA Method 5*
Sulfur Dioxide (SO_2)	USEPA Method 6/6c
Opacity	USEPA Method 9
Carbon Monoxide (CO)	USEPA Method 10
Nitrogen Oxides (NO_x)	USEPA Method 7E
Volatile Organic Material (VOM)	USEPA Method 25A**

* Measurements shall also be taken and reported for the back half of the sampling train, to obtain additional measurements of condensable particulate matter.

** Outlet testing and control efficiency testing will be based on either Method 25 or Method 25A calibrated to propane, whichever is applicable depending on concentration (i.e., Method 25 shall be used on both the inlet and outlet when the outlet total hydrocarbon (THC) concentration is $\geq$ 50 ppm as carbon and Method 25A shall be used on both the inlet and outlet when the outlet THC concentration is < 50 ppm as carbon).

ii. Due to the high moisture levels in the exhaust from the feed dryers, USEPA particulate matter$_{10}$ (PM_{10}) test methods are not considered reliable and are not being required to measure PM_{10}.

iii. The outlet compliance testing location may be located prior to the final stack due to the commingling of the #5 and #6 driers exhaust streams but must be located after the Dryer #5 RTO.

c. The Permittee shall submit a written test plan to the Illinois EPA for review and approval for the initial testing and if a significant change in the procedures for this testing is planned from the procedures followed in the previous test. This plan shall be submitted at least 60 days prior to the actual date of testing and include the following information as a minimum:

i. A description of the planned test procedures.

ii. The person(s) who will be performing sampling and analysis and their experience with similar tests.

iii. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions.

iv. The specific points at which samples will be taken for a pollutant if sampling will be conducted at the stack, or other point that includes the exhaust from other dryers, rather than after control units, and the approach being taken for showing compliance, e.g., all dryers will comply with a PM limit of 0.010 gr/scf.

d. The Permittee shall notify the Illinois EPA prior to conducting these measurements to enable the Illinois EPA to observe testing. Notification for the expected date of testing shall be submitted a minimum of 30 days prior to the expected date. Notification of the actual date and expected time of testing shall be submitted a minimum of 5 working days prior to the actual date of the test. The Illinois EPA may accept shorter advance notice if it does not interfere with the Illinois EPA's ability to observe testing.

e. Copies of the Final Report(s) for these tests shall be submitted to the Illinois EPA within 30 days after the test results are compiled and finalized. These reports shall include as a minimum:

i. General information, i.e., date of test, names of testing personnel, and names of Illinois EPA observers.

ii. A summary of results, e.g. PM, VOM, and CO emissions, lb/hour and gr/scf or ppmv.

iii. Detailed description of operating conditions of the dryer, including:

A. Process information, e.g. feed composition, operating rate, and moisture content.

B. Control system operating parameters during testing.

C. Solids content/ph of various scrubbant streams.

D. Temperature drop across the waste heat evaporator.

iv. Data and calculations.

v. Conclusions.

6. Monitoring

a. The Permittee shall install, maintain and operate continuous monitors on the low NO_x burner(s) for the following parameters:

i. Firing rate (cubic feet/hour of gas to the burner).

ii. Furnace temperature.

iii. Combustion air fan amperage.

b. The Permittee shall install, maintain and operate continuous monitors on each scrubber that supply continuous readings and store average hourly values for the following parameters:

i. Scrubbant flow rate (gallons/minute).

ii. Pressure drop, if a packed bed or Venturi scrubber.

iii. PH of scrubbant, if caustic or other reagent is added to the scrubbant for control of SO2 emissions.

c. The Permittee shall install, maintain and operate continuous monitors on the RTO for the following parameters:

i. Pressure differential across the RTO.

ii. Combustion chamber temperature.

d. i. The Permittee shall either equip the RTO with device(s) to indicate flow to the RTO from the dryer or equip the emergency release for such streams, if any, with device(s) to indicate flow through the emergency release, which device(s) which shall record such information at least once every hour.

ii. All monitoring devices shall be installed, calibrated, and maintained according to the supplier’s specifications and/or good industry standards and shall be operated at all times that Dryer #5 is in use.

7. Recordkeeping

a. The Permittee shall maintain the following operating records for Dryer #5. This data shall be recorded whenever a new measurement is taken or an item is changed, except as specified below:

i. Dryer throughput based on the daily grind rate and relative loading, firing rate (mmBtu/hr) and feed moisture levels (input and output % moisture), recorded at least once per shift.

ii. Configuration of the control system, including bypass of any unit, significant changes in its usage of units, changes in water supply to units, or changes in reagent.

iii. Desired values of the operating parameters of the control system.

iv. Based on preliminary testing the facility shall determine and keep records of the optimum furnace temperature operating range.

v. Actual furnace operating temperature shall be monitored from the control room and recorded.

vi. I.D. fan amperage.

vii. Recirculated air damper position.

b. The Permittee shall maintain records of the following operating parameters for the emission control units. These parameters for which there is continuous monitoring (See Condition 6a) shall be manually recorded at least every two hours, if automatic measurement and recording device(s) are not in service for more than two hours. Other parameters shall be recorded at least every two hours.

i. For the low NO_x burner:

A. Firing rate based on percent valve opening and gas pressure.

B. Furnace temperature based on percent valve opening of gas pressure.

C. Volumetric flow rate of recirculated air and secondary air based on damper position.

ii. Gas valve position of the RTO burner.

d. The Permittee shall keep records of all emission measurements conducted for Dryer #5 including:

i. Records of emission measurements conducted pursuant to Condition 6.

ii. Records of other measurements of emissions conducted as part of the evaluation of Dryer #5 and its control system.

e. The Permittee shall maintain records for any period during which Dryer #5 was in operation when its air pollution control equipment was not in operation or was not operating properly.

i. These records shall include each period of time when an operating parameter of a control system, as recorded above, deviated outside the level set as good air pollution control practice (date, duration and description of the incident).

ii. These records shall include the cause for pollution control equipment not operating properly or being out of normal service, for incidents when control equipment failed to operate properly and shall identify the corrective actions that were taken, the repairs that were made, and the steps that were taken to prevent any such reoccurrence.

iii. These records shall also identify any such periods during which an emission unit exceeded the requirements of this permit, including applicable emission limits. This record shall include the cause for noncompliance, if known, and the corrective action(s) and preventive measures taken to prevent any such reoccurrence if any.

f. The Permittee shall keep emission records for Dryer #5 as follows:

i. PM emission rate, in lb/hour, determined for each configuration and condition of the dryers and their control systems, based on test data or other engineering estimates with supporting explanations and calculations. Until emission testing is conducted, this determination shall be based on design data.

ii. Number of hours operated at each emission rate identified above on a monthly basis, with explanation.

iii. Monthly emissions of PM, NO_x, CO, VOM, and SO_2, determined as the summation of the product of the above records.

iv. Annual emissions of PM, NO_x, CO, VOM, and SO_2.

8. Records Retained

a. The Permittee shall retain all records required by this permit at the source for at least five years, at a location where the records are readily accessible for inspection by the Illinois EPA.

b. The Permittee shall make all records required by this permit available for inspection at the source by the Illinois EPA, providing copies of records to the Illinois EPA upon request. For this purpose, the Permittee may keep records in a computerized data system provided that, upon request by the Illinois EPA during the source's normal working hours, requested information is retrieved and available prior to inspection completion to the Illinois EPA.

9. Notification

a. The Permittee shall notify the Illinois EPA within 5 days of the initial startup of the Dryer #5 RTO.

b. If there is an exceedance of the annual emission limits of this permit as determined by the records required by this permit or by other means, the Permittee shall submit a report to the Illinois EPA within 30 days after the exceedance. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or violation and efforts to reduce emissions and future occurrences.

10. Reporting

a. For Dryer #5, the Permittee shall submit quarterly compliance reports to the Illinois EPA. For any calendar quarter during which there are exceedances by the dryer, this report shall include information as specified in Condition 9(b). If there are no exceedances during the calendar quarter, the Permittee shall state that no excess emissions occurred during the reporting period. This report may be combined with other quarterly reports for units in the mill.

b. For VOM and CO emissions from the dryer, excess emissions are defined as any 3-hour block average in which the average combustion chamber temperature of the RTO when the dryer was operating, was more than 50°F below the temperature during testing that demonstrated compliance with applicable requirements.

11. Requirements

The Permittee may start up the dryer with the system bypass damper open (venting to atmosphere following the scrubbers) as required to gradually increase airflow loading and prevent damage or excessive wear to the RTO rotor and other RTO components. The system damper must be closed as soon as airflow to the RTO stabilizes, but in no case later than achieving 50 percent load on the dryer or longer than the time period(s) specified in the CAAPP permit for the source.

12. Illinois EPA Addresses

Any required reports and notifications concerning equipment operation, emissions testing, or a monitoring system shall be sent to the Illinois EPA at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276
Telephone: 217/782-5811 Fax: 217/524-4710

A copy of all required reports and notifications, except the Annual Emission Report required by 35 IAC Part 254, shall also be sent to the Illinois EPA at the following address:

Illinois Environmental Protection Agency
Division of Air Pollution Control
2009 Mall Street
Collinsville, Illinois 62234
Telephone: 618/346-5120

13. Other Requirements

a. This permit does not relieve the Permittee of the responsibility to comply with all applicable local, state and federal requirements which are part of Illinois State implementation Plan, as well as all other applicable local, state and federal requirements including requirements.

b. In particular, this permit does not address the requirements applying to the Permittee under the Consent Decrees entered into by the Permittee with the United States and State of Illinois, in the United State District Court for the Central District of Illinois, United States, v. Archer Daniels Midland Company, Civil Action No. 03-2066, and United States of America, People of the State of Illinois, v. Archer Daniels Midland Company, Defendant, Civil No. 00-2338.

If you have any questions concerning this permit, please contact Kevin Smith at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

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cc: Region 3